

REMARKS

The present remarks are responsive to an Official Action having a mailing date of August 1, 2002. Claims 13-25 are pending. Claims 13-25 are rejected. Reconsideration and withdrawal of the rejections are respectfully requested.

Claims 13-16, 19-22 and 25 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,341,005 to Oscarsson. The Examiner has stated the Oscarsson patent discloses a filter comprising a hollow fiber bundle using half shells with fibers laid out in parallel arrangement in a tubular housing formed of half shells sealed together, the tubular housing of circular or rectangular cross section, covering the ends of the fiber (Oscarsson, column 3, lines 22-25), potting the ends of the bundle, and then cutting the ends to have the tube core open at the ends for fluid passage through the tubes (Oscarsson, Figs. 1-3, column 3, line 60 - column 4, line 3). The Examiner further states that the two half shells of Oscarsson can then be clamped together before sealing, and the fiber bundle is potted in the housing (Oscarsson, column 3, lines 27-31).

Actually, Oscarsson teaches a method of manufacturing hollow fiber fluid fractionating cells comprised of the following steps, in sequence (Oscarsson, column 1, lines 28 - 42): (1) winding the hollow fibers onto a half-cell section to fully fill cell sections; (2) closing the other half of the cell section over the filled half to complete the side walls of the cell core; (3) cutting the fibers between the cell cores and removing the cores from the winding device; (4) potting the fibers at the ends of the cell by centrifugal castings, which also permits the potting compound to join with the cell walls; and (5) again cutting the ends of the fibers to re-expose the hollow cores.

On the other hand, independent claim 13 of the present invention presents a method of producing hollow fiber membrane-containing filters including the following steps: (1) laying hollow filters in a first portion of a filter housing to form a bundle; (2) forming and sealing the first and second portion of the filter housing into a filter housing; (3) connecting the first and second portion of the filter housing and the bundle of fibers together by application of a potting compound; and (4) cutting the ends of the hollow fibers at at least one end subsequent to the connecting step (3), to leave open ends. Therefore, only a single cutting step is necessarily performed by the process defined by claim 13 of the present invention, whereas *Oscarsson* requires at least two cutting steps, as outlined above. Therefore, claim 13 of the present invention requires fewer steps (4) than does *Oscarsson* (5).

Claims 13-16 and 19-22 and 25 of the present invention thus describe a filter and a method of filter production wherein the ends of the hollow fibers are cut or the filters are dismantled from the winding wheel only after the housing portions are adhered to each other and the potting compound is applied. This involves fewer processing steps than the process of *Oscarsson* and reduces the risk that the filter is contaminated. It is therefore clear that *Oscarsson* neither teaches nor suggests the presently claimed invention.

The Examiner has also stated that *Oscarsson* teaches that the half shells could be sealed with potting after taking them out of the rotary winding wheel, or they could be sealed before taking them out of the rotary winding wheel, citing *Oscarsson*, column 2, lines 53 - 63, and column 4, lines 1 - 3. The text of *Oscarsson*, at column 2, lines 53 - 63, however, actually reads as follows:

This holds the fiber in place as it is wound unto the sections. Fluid-filled permeable

hollow fiber filaments 13 supplied from reel 14 are wound into sections 10a until they are filled with 100% of the fiber required to make a cell core. The mating sections 10b for each section are then placed over the sections 10a to hold the fiber bundle. The fibers between each section are cut as indicated by the arrows 18 to free the completed core 11. The seams between sections 10a and 10b can be made fluid tight either before or after removal of the core.

It is thus evident that, contrary to the Examiner's assertions, no mention is made in this reference of "sealing with potting".

Further, the text of *Oscarsson*, at column 4, lines 1 - 3, reads as follows:

... [de]vice, two half sections would be assembled after removal from the winding device and the bundle clamps then removed.

This reference refers only to the assembly of the cell sections and makes no mention of "sealing with potting". Thus, it is clear that the *Oscarsson* reference is not anticipatory of the claims of present invention.

Claims 17, 18, 23 and 24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable under U.S. Patent No. 4,341,005 to *Oscarsson* in view of EP (0 200 158 A2), and Apparatus for Effecting Mass and/or Heat Transfer (corresponding U.S. Patent No. 4,724,900) to *Baurmeister et al.*

Firstly, applicant will restate the above-noted differences of *Oscarsson*, and its utter failure to disclose the specific sequence of cutting the ends of the hollow fibers only after the two halves of the filter housing have been joined together with the potting compound applied to the hollow fibers therein. The Examiner has, in argument, correctly pointed out that *Oscarsson* "fails to disclose the two halves of the tubular housing as

being flexibly connected (as in claims 17, 23 [of the present invention]) with film hinges (as in claims 18 and 24 [of the present invention])." The Examiner then cites *Baurmeister et al.* figures 9 - 11 and 14 - 16 as an example of longitudinally split housing halves joined by "film hinges", and states that it would have been obvious to one of skill in the art at the time to combine the *Oscarsson* and *Baurmeister et al.* references. The Applicants respectfully disagree.

First, to show that the claim is *prima facie* obvious over a combination of references, the Examiner must show that the combination discloses, teaches or suggests every limitation of the claim. See MPEP § 2143.03. Neither *Oscarsson* nor *Baurmeister et al.*, alone or in combination, disclose, teach or suggest a filter or method of producing a filter having two longitudinally split halves of tubular housing flexibly joined.

*Baurmeister et al.* figures 9 - 11 and 14 - 15 do not disclose a tubular housing longitudinally split into two halves, but rather disclose only a flexible tubular housing with a single longitudinal split. *Baurmeister et al.* figure 16, while disclosing a tubular housing split into two halves, does not disclose a flexible tubular housing or a "film hinge".

Furthermore, *Baurmeister et al.* does not disclose an aperture for use in potting, such as the potting aperture 53 of the present invention.

Second, to set forth a *prima facie* case of obviousness over a combination of references, the Examiner must show that the prior art provides some suggestion or motivation to combine the references, i.e., prior art must teach or suggest the desirability of the combination. See MPEP § 2143.01.

There is no motivation for one skilled in the art to use a heat or mass transfer apparatus, as in the *Baurmeister et al.* patent, in combination with the *Oscarsson* method of manufacturing

hollow fiber fluid fractioning cells. The Examiner states that it would have been obvious to have two halves of a housing hinged together "like a box and its lid, or as taught by EP (158) [Baurmeister et al.]" into the Oscarsson method. However, Baurmeister et al.'s housing is not longitudinally divided into halves, except for one instance where film hinges such as used in the present invention are not employed. No reference or suggestion is made in Baurmeister et al. to use the manufacturing method of Oscarsson. Accordingly, Baurmeister et al. is incapable of providing motivation for one skilled in the art to combine longitudinally divided tubular housing halves with or without film hinges into Oscarsson.

On the basis of the foregoing, Applicants respectfully maintain that the Examiner has not set forth a *prima facie* case of obviousness with respect to claims 17 - 18 and 23 - 24. Therefore, the rejection of these claims is improper and should be withdrawn.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment.

The attached page is captioned "Version with markings to show changes made."

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Respectfully submitted,

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Version With Markings to Show Changes Made

13. (Amended) A method for producing hollow fiber membrane-containing filters including a filter housing having a first portion and a second portion and including a first end and a second end, said method comprising

    laying a plurality of said hollow fibers in said first portion of said filter housing to form a bundle of said hollow fibers,

    forming said first and second portions of said filter housing into said filter housing,

    sealing said first and second portions of said filter housing together, connecting said plurality of hollow fibers together at at least one of said first and second ends of said filter housing,

    connecting said plurality of hollow fibers to said filter housing and simultaneously adhering said first and second portions of said filter housing together by applying a potting compound thereto to provide a closed housing, and

    cutting said ends of said hollow fibers at said at least one of said first and second ends of said closed housing whereby said plurality of hollow fibers include open ends.